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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
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WILSON, MICHAEL H

ART UNIT	PAPER NUMBER
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1794

NOTIFICATION DATE	DELIVERY MODE
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12/12/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/560,735	<b>Applicant(s)</b> NII ET AL.	
	<b>Examiner</b> MICHAEL WILSON	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20051215</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Seo et al. (2002/0101154 A1) as evidenced by Forrest et al. (US 2002/0008233 A1) and Lamansky et al. (US 2002/0182441).

Regarding claim 1, Seo et al. disclose an organic electroluminescent device comprising a pair of electrodes, a hole transport layer, an electron transport layer, and a luminescent layer [0045]. The luminescent layer is disclosed to comprise a hole transport material, an electron transport material, and a phosphorescent compound [0045]. The reference discloses aromatic amine compounds as suitable hole transporting materials [0104] and discloses CBP, a specific aromatic amine, as a suitable host material for the luminescent layer [0121]. CBP is known to be a hole transporting material, as evidenced by Forrest et al. (Forrest: [0069]). Therefore, CBP is disclosed as a suitable hole transporting host material for the luminescent layer. BAId is disclosed as a suitable electron transport host for the luminescent layer ([0105] and [0114]). NPD is disclosed as a suitable material for the hole transport layer ([0104] and [0113]). PtOEP is disclosed as a suitable red phosphorescent material [0121].

While the ionization potentials of NPD, BAQ, and CBP are not disclosed by the reference, they are the same compounds which are disclosed by Applicant as having ionization potentials of 5.4, 5.8, and 6.0 eV, respectively. Therefore, since NPD, BAQ, and CBP disclosed by Seo et al. are the same compounds as disclosed by Applicant, the ionization potential of NPD, BAQ, and CBP would be expected inherently to have the same properties as disclosed by applicant. Recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that reference composition does not possess the characteristics recited in the claims. In *re Fitzgerald*, 205 USPQ 597, In *re Best*, 195 USPQ 430.

Regarding claim 2, Seo et al. disclose all the claim limitations as set forth above. The reference discloses PtOEP as a suitable red phosphorescent material for the luminescent layer [0121]. While the reference does not disclose the lowest triplet energy of PtOEP the lowest triplet energy of PtOEP is known to be 1.9 eV, as evidenced by Lamansky et al. (Lamansky: [0133] table 1), which is between 167.6 and 230.5KJ/mol.

Regarding claims 3 and 4, Seo et al. disclose all the claim limitations as set forth above. Additionally the reference discloses phenanthroline derivatives and oxadiazole derivatives as suitable electron transport compounds [0105]. Phenanthroline and oxadiazole compounds heterocyclic skeletons with two or more hetero atoms.

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Regarding the ionization potential of the electron transport host of the luminescent layer, while the reference does not explicitly disclose the ionization potential, the compounds of Seo et al. are within the formula claimed by applicant as having a larger ionization potential. Therefore since the electron transport host compounds disclosed by Seo et al. being within the formula claimed by applicant, the ionization potential of the compounds would be expected inherently to have the same properties as disclosed by applicant. Recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that reference composition does not possess the characteristics recited in the claims. In *re Fitzgerald*, 205 USPQ 597, In *re Best*, 195 USPQ 430.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo et al. (2002/0101154 A1) as evidenced by Forrest et al. (US 2002/0008233 A1) and Lamansky et al. (US 2002/0182441) as applied to claims 1 and 4 above and in view of Ise et al. (US 2002/0028329 A1).

Regarding claim 5, Seo et al. disclose all the claim limitations as set forth above. However the reference does not explicitly disclose a compound of instant formula (I) as an electron transport material for the luminescent layer.

Ise et al. teach a similar organic electroluminescent device. The reference teaches heterocyclic compounds of instant formula (I) ([0021], [0059]-[0061], [0082]-[0084]) as suitable electron transport materials for the luminescent and electron transport layers ([0118] and [0195] table 1). The reference teaches that using compounds of instant formula (I) those layers gives a light-emitting device with high luminescent efficiency [0027].

It would be obvious to one of ordinary skill in the art at the time of the invention to use the electron transport compounds of Ise et al. as electron transport host material in the luminescent layer of Seo et al. One of ordinary skill would reasonably expect such a combination to be suitable given that Ise et al. teach the compounds as suitable electron transport materials and that they may be used as host material for luminescent layers in phosphorescent organic electroluminescent devices (Ise: [0195] table 1). One

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of ordinary skill in the art would be motivated by a desire to make a light-emitting device with high luminescent efficiency.

Regarding the ionization potential of the electron transport host of the luminescent layer, while the reference does not explicitly disclose the ionization potential, the compounds of modified Seo et al. are within the formula claimed by applicant as having a larger ionization potential. Therefore since the electron transport host compounds disclosed by modified Seo et al. being within the formula claimed by applicant, the ionization potential of the compounds would be expected inherently to have the same properties as disclosed by applicant. Recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that reference composition does not possess the characteristics recited in the claims. In *re Fritzgerald*, 205 USPQ 597, In *re Best*, 195 USPQ 430.

Regarding claims 6-9, Seo et al. disclose all the claim limitations as set forth above. However the reference does not explicitly disclose a compound of instant formula (I) as an electron transport material.

Ise et al. teach a similar organic electroluminescent device. The reference teaches heterocyclic compounds of instant formula (E1) ([0021], [0059]-[0061], [0082]-[0084]) as suitable electron transport materials for the luminescent and electron transport layers ([0118] and [0195] table 1). The reference also teaches compounds of instant formula (E-II) as electron transport material ([0082]-[0084], [0101]-[0106], [0195]

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table 1), explicitly using compound B-40 in the electron transport layer ([0195] table 1, examples 1-8). Additionally the reference teaches compounds of instant formulae (E-III) and (E-IV) as electron transport material ([0068]-[0077]), explicitly using compound A-19 in the electron transport layer ([0195] table 1, examples 9 and 10). The reference also teaches that using compounds of instant formula (E1) those layers gives a light-emitting device with high luminescent efficiency [0027].

It would be obvious to one of ordinary skill in the art at the time of the invention to use the electron transport compounds of Ise et al., such as compounds B-40 and A-19, in the electron transport layer of Seo et al. One of ordinary skill would reasonably expect such a combination to be suitable given that Ise et al. teach the compounds as suitable electron transport materials in phosphorescent organic electroluminescent devices. One of ordinary skill in the art would be motivated by a desire to make a light-emitting device with high luminescent efficiency.

Regarding the ionization potential of the electron transport host of the luminescent layer, while the reference does not explicitly disclose the ionization potential, the compounds of modified Seo et al. are within the formula claimed by applicant as having a larger ionization potential. Therefore since the electron transport host compounds disclosed by modified Seo et al. being within the formula claimed by applicant, the ionization potential of the compounds would be expected inherently to have the same properties as disclosed by applicant. Recitation of a newly disclosed property does not distinguish over a reference disclosure of the article or composition claims. *General Electric v. Jewe Incandescent Lamp Co.*, 67 USPQ 155. *Titanium Metal*



*Corp. v. Banner*, 227 USPQ 773. Applicant bears responsibility for proving that reference composition does not possess the characteristics recited in the claims. In *re Fritzgerald*, 205 USPQ 597, In *re Best*, 195 USPQ 430.

Regarding claim 10, Seo et al. disclose an organic electroluminescent device comprising a pair of electrodes, a hole transport layer, an electron transport layer, and a luminescent layer [0045], with the hole and electron transport layers adjoining the luminescent layer ([0113]-[0115]). The luminescent layer is disclosed to comprise a hole transport material, an electron transport material, and a phosphorescent compound ([0045] and [0114]). PtOEP is disclosed as a suitable red phosphorescent material [0121]. However the reference does not explicitly disclose a compound of instant formula (I) as an electron transport material for the luminescent layer.

Ise et al. teach a similar organic electroluminescent device. The reference teaches heterocyclic compounds of instant formula (I) ([0021], [0059]-[0061], [0082]-[0084]) as suitable electron transport materials for the luminescent and electron transport layers ([0118] and [0195] table 1). The reference teaches that using compounds of instant formula (I) those layers gives a light-emitting device with high luminescent efficiency [0027].

It would be obvious to one of ordinary skill in the art at the time of the invention to use the electron transport compounds of Ise et al. as electron transport host material in the luminescent layer of Seo et al. One of ordinary skill would reasonably expect such a combination to be suitable given that Ise et al. teach the compounds as suitable electron transport materials and that they may be used as host material for luminescent

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layers in phosphorescent organic electroluminescent devices (Ise: [0195] table 1). One of ordinary skill in the art would be motivated by a desire to make a light-emitting device with high luminescent efficiency.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Forrest et al. (JP-2003/520391 A), Kwong et al. (US 2002/0074935 A1), and Furugori et al. (JP-2003/68466 A) all disclose similar organic electroluminescent devices which overlap with the present invention, but are cumulative to the rejections of record.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL WILSON whose telephone number is (571) 270-3882. The examiner can normally be reached on Monday-Thursday, 7:30-5:00PM EST, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MHW

/Callie E. Shosho/  
Supervisory Patent Examiner, Art Unit 1794